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10/685,053	10/14/2003	William Arthur Welsh	S-5654	5716

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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/685,053
Filing Date: October 14, 2003
Appellant(s): WELSH ET AL.

MAILED
DEC 19 2007
GROUP 3600

David L. Wisz
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 9/4/07 appealing from the Office action mailed 5/31/06.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

3,219,120	HOOPER	11-1965
6,606,922	CASE ET AL.	8-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 12-17, 20, 21 and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hooper in view of Case et al.

Re: claim 12, Hooper shows a vibration isolation system for reducing vibrations in a rotating system which rotates about an axis of rotation in figure 3, as in the present invention, comprising: an enclosed chamber 22 mounted to the rotating system 20 for rotation about said axis of rotation independent of the rotating system. Hooper uses a vibration isolation device with movable eccentric masses 50, 51, 53 and 54 to balance the shaft 21 in order to reduce vibration. Case et al. teach a vibration isolation device that also uses eccentric masses but without internal moving parts comprising: an enclosed chamber 282 partially filling with an MR fluid 284, see column 13, lines 39-42; and an electromagnetic field generation system 290 mounted adjacent said enclosed chamber to azimuthally vary a viscosity of said MRF and distribute said MRF within said enclosed chamber to reduce said vibrations, as shown in figure 4. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Hooper's vibration isolation system with a vibration isolation device such as Case's in order to dampen a wide range of frequency at the same time reducing internal moving parts which in turn would reduce the overall weight of the device as taught by Case.

Re: claims 13-15, in column 1, lines 30-35, Hooper teaches the rotational speed of the enclosed chamber as claimed.

Re: claim 16, Hooper shows main rotor system 12.

Re: claim 17, Hooper shows drive system 30, 39.

Re: claim 20, Case further shows multiple electromagnets 290.

Re: claim 21, Hooper shows a helicopter rotor system 12 which rotates about an axis of rotation, comprising: a main rotor system 12 having an N number of blades which rotates about an axis of rotation at a rotational speed of 1P, such that said main rotor system produces NP vibrations, see column 1 lines 30-35; an enclosed chamber mounted to said main rotor system for rotation about said axis of rotation independent of said main rotor system as shown. Hooper uses a vibration isolation device with movable eccentric masses 50, 51, 53 and 54 to balance the shaft 21 in order to reduce vibration. Case et al. teach a vibration isolation device that also uses eccentric masses but without internal moving parts comprising: a housing 62 partially filling with an MR fluid 284, see column 13, lines 39-42; a sensor system 48, a control system 42 in communication with said sensor system, and an electromagnetic field generation system 290 mounted adjacent said enclosed chamber to azimuthally vary a viscosity of said MRF and distribute said MRF within said enclosed chamber to form an eccentric mass in response to said control system to reduce said vibrations, as shown in figure 4. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Hooper's helicopter with a vibration isolation device such as Case's in order to dampen a wide range of frequency at the same time reducing internal moving parts which in turn would reduce the overall weight of the device as taught by Case. Note that Hooper's helicopter as modified by Case's vibration isolator would have the same control scheme wherein the goal is to dampen out NP vibration as stated by Hooper in column 1, lines 30-35.

Re: claims 29-32, Hooper shows in figure 3, the housing 28 to be rotated with the main rotor 12, the enclosed chamber 22 rotates within said housing, drive system 30, 39 located within housing 28. As modified by Case, Hooper's system would have the electromagnets 290 within housing 28 of Hooper similar to the housing 62 of Case, said electromagnets are mounted adjacent said enclosed chamber 282 of Case.

(10) Response to Argument

I. Applicant argues that the combination of Hooper in view of Case is usage of hindsight.

Applicant argues that Hooper employs a mechanical vibration absorption system and makes no mention of MRF. On the other hand, Case uses an MRF vibration absorption system and makes no mention of a mechanical vibration absorption system.

Applicant is correct in that Hooper and Case employ different types of vibration absorption systems. As stated in the Final Rejection, Hooper's vibration absorption system is to dampen vibration (i.e. unbalancing) of the shaft 21. Case's vibration absorption system is also to dampen vibration of the shaft 20. Be it that Hooper's shaft belongs to a helicopter and Case's shaft belongs to a motor, the problem of vibration in both shafts is the same. Since Hooper and Case were striving to solve the same problem to achieve a balanced shaft, the vibration absorption systems used by Hooper and Case would be applicable to both. In order words, Hooper's mechanical vibration absorber and Case's vibration absorber are both well known vibration absorbers which are both used to dampen vibration in shafts. To use one in place of the other would have yielded the same predictable results of dampening vibration in a shaft. Moreover, Case's absorber provides the advantage of less moving parts and is adjustable which would motivate one of ordinary skill in the art of vibration dampening to modify Hooper's helicopter with Case's vibration absorber.

II. Applicant further argues that the combination of Case with Hooper would ruin Hooper.

It is believed that Applicant is arguing the references separately and not as a combination. Applicant argues that the vibration absorber of Case is installed with a removable fixture on a machine tool while Hooper is working with a helicopter which would require a secure retention for the proper working of an aircraft. It is believed that one of ordinary skill in the art when looks to Case for an improved vibration absorber would install the new and improved vibration absorber according to the proper working procedure of an aircraft. Case's absorber dampens vibration in a rotating shaft of a machine tool and would have dampened vibration in a rotating shaft of a helicopter.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Xuan Lan Nguyen/ 12-07-07

Conferees:

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